A Work Project, presented as part of the requirements for the Award of a Master Degree in Finance from the NOVA – School of Business and Economics.

Equity Research: GlaxoSmithKline

Overview and Valuation

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Abstract

With increase of health and wellness awareness, we feel interested to do an equity research on a pharmaceutical/healthcare company. Since the economy is damaged by Covid-19 pandemic, the big pharmaceuticals firms are developing vaccines for this virus. Therefore, we found GSK, the second largest vaccines firm in the world as our target company.

Our consolidated report is divided into 7 parts: Executive Summary, Overview, Investment and Strategic, Past Analysis, Macroeconomics Environment, Forecast and Valuation. In this report, it will cover the following 3 parts: Company and Industry overview, past analysis of GSK's financial statement and valuation which includes several scenarios to approximate the actual share price of the firm.

Keywords: Pharmaceuticals, Equity Research, GSK, Valuation

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This report is part of the GSK report (annexed) and should be read has an integral part of it.

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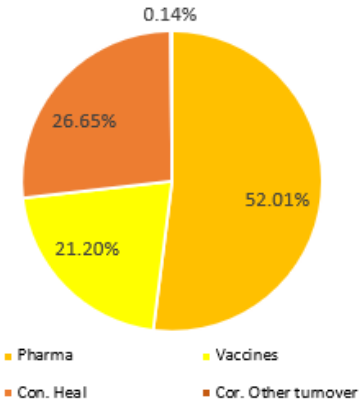
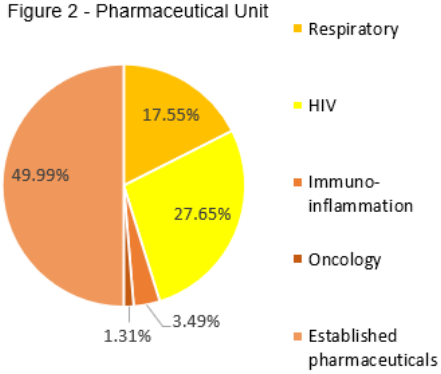


Source: Company Data, 2019

The second largest vaccine company in the world

Figure 2 - Pharmaceutical Unit



Source: Company Data, 2019

Established in 2000, by merging Glaxo Wellcome and SmithKline Beecham, GlaxoSmithKline PLC is a science-led global healthcare company headquartered in Brentford, England. GSK explores, develops, and distributes a range of products, segmented by three units: Pharmaceuticals (52%), Vaccines (21%), and Consumer Healthcare (27%). GSK is a LSE listed company, and a constituent of FTSE100. On 5th Nov 2020, the company had a market capitalization of £71.5bn. The firm has a strong presence internationally, with more than 70% of revenue coming from outside of Europe in 2019. In 2020 October, GSK is the sixth[1] largest global pharmaceutical company, the second largest vaccine company after Gilead Science[2] , as well as the largest Consumer Healthcare company after Johnson & Johnson.

GSK's products are split across three operating divisions, all of which are profitable over the last nine years:

Pharmaceutical Unit is the largest division in GSK's total revenue, accounting for about 52% in 2019. This unit has a broad portfolio of innovative and established medicines, including HIV (accounting for 28% of GSK's pharmaceuticals sales), Respiratory (18%), Immune-inflammation (4%), Oncology (1%) and Established Pharmaceuticals[3] (50%). GSK's pharmaceutical products enjoy a leading global position in Respiratory and HIV treatment. The Group has an expertise in the respiratory area, and a strong pipeline to offset the decline in sales of the *Advair/Seretide*[4] (important revenue origin) that totaled about £1.7bn in 2019, decreasing by 29% from 2018. The HIV business is run through a joint venture between GSK (78%), Pfizer (12%) and Shionogi (10%). Its revenue jumped 3% to £4.9bn in 2019. HIV has become the group's first most important pharmaceutical

[1] According to Forbes as of 2019, the world's six largest pharmaceutical companies by revenue are Pfizer, Novartis, Roche, Sanofi, and Merck & Co and GSK.

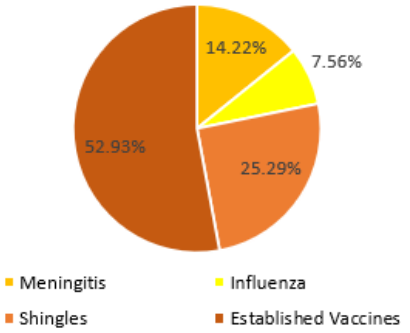
[2] Gilead is a research-based biopharmaceutical company focused on the discovery, development, and commercialization of innovative medicines.

[3] Established Pharmaceuticals include pharmaceuticals whose patents were expired, for instance, *Advair* or pharmaceuticals that do not belong to Oncology, HIV, Respiratory or Immune inflammation segments, *Avamys/Veramyst,* for example.

[4] Drugs to treat asthma; GSK's previous top-selling brand *Advair/Seretide* continues to face aggressive competition from generics.

segment, with *Tivicay* [5] and *Triumeq* [6] having reached £1.6bn and £2.5bn respectively. GSK is investing in oncology with the acquisition of Tesaro in 2019, which has developed a first-line treatment for ovarian cancer and with its recent alliance.

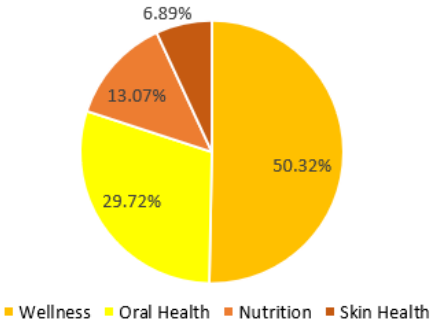
Figure 3 - Vaccines Unit



Source: Company Data, 2019

Vaccines Unit (about 21% of the group's revenues) develops, produces, and distributes over 2 million vaccines every day to people across over 160 countries. It covers people at all stages of life and a wide array of diseases including childhood vaccination against diseases such as Measles and Meningitis, Adolescents and adults' vaccines against HPV[7] as well as older adults' vaccines against *influenza* and *whooping cough*. Vaccines unit is divided by four segments: Meningitis, (accounting for 14% of Vaccines total revenue in 2019), Influenza (8%), Shingles (25%) and Established Vaccines[8] (53%).

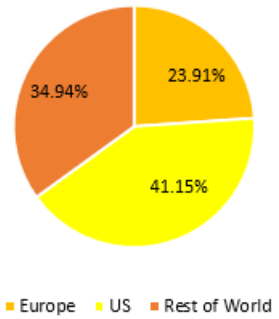
Figure 4 - Consumer Healthcare Unit



Source: Company Data, 2019

Consumer Healthcare Unit (about 27% of 2019 revenues) develops and markets products in various categories, such as wellness, oral health, nutrition, and skin health. The group's wellness products portfolio is broad, encompassing areas such as respiratory, cold and flu, nasal decongestants, allergy, smoking cessation, and pain management. To be noted that GSK completed its transaction with Pfizer to combine their Consumer Healthcare business into a world-leading Joint Venture in 2019.

Figure 5 - Geographic Segmentation



Source: Company Data, 2019

Geographically, GSK has a significant global presence, with majority of revenues driven by the US, (41% of Group revenues), with Europe (24%) and International revenue (35%). The UK, where the Group is incorporated, contributes to 3% of the total sales.

According to Eikon platform, GSK's **current[9] share outstanding** is more than 5017 million with 99.09% of free float. The rest of shares are composed by GlaxoSmithKline Plc ESOP (Employee Share Ownership Plan) (0.72%), Mizuho Trust & Banking Co. Ltd (0.09%) and Individual Investors (0.01%) such as CEO Emma N. Walmsley. Pharma firms usually keep a large size of the free float shares in the market in order to diminish volatility (smaller bid-ask spread due to the large

[5] *Tivicay,* is a brand selling drugs such as *Dolutegravir* to treat HIV/AIDS.

[6] *Triumeq* is medicine used to treat HIV-1 infection in adults and in children.

[7] Human Papillomavirus is a viral infection that's passed between people through skin-to-skin contact.

[8] Established Vaccines include vaccines whose patents were expired, for instance, *Infanrix* or vaccines that do not belong to Meningitis, Influenza or Shingles segments, for example *Cervarix. Cervaris* is a vaccine against certain types of cancer-causing human papillomavirus (HPV).

[9] 29/12/2020

Figure 6

% of Free Float Shares	
Abbvie	99.89%
AstraZe	95.75%
GSK	99.09%
Merck	99.91%
Novartis	93.67%
Pfizer	99.95%
Roche	100%
Sanofi	88.90%

Source: Eikon Platform (28/12/2020)

number of shares available for trade) and increase liquidity. For instance, the free float shares represent 99.95% of Pfizer's total shares, 93.67% in Novartis and 100% in Roche.

Industry Overview

The global pharmaceutical manufacturing market size amounted to $324.4bn in 2019 and is projected to grow at a compound annual growth rate (CAGR) of 13.7% from 2020 to 2027[10]. The two largest pharmaceutical markets are North America (40.1% of global sales) and Europe (21%); however, China is the second largest market among individual countries. In terms of **vaccines**, global vaccine sale was valued at $46.9bn and is expected to reach $104.9bn by 2027, exhibiting a CAGR of 10.7% over the seven years between 2020 and 2027[11]. According to a report published by Research Cosmos, the global **Consumer Healthcare** market expected to increase at an impressive CAGR of around 9.0% from 2019 to 2025. Although the report didn't take Covid-19 impact into consideration, we believe the short-term disruptions would not influence long term growth. Furthermore, the key market drivers are increase of usage of e-commerce websites and awareness to wellness, self-medication and aging population.

Demographic changes increase the demand of healthcare products

Positive Demographics: Longer life expectancy led to a change in world demographic, which became the reason of higher demand for preventive and therapeutic healthcare products. Population over 65 years is predicted to double from 2017 to 2050 and based on the average growth of the last five years, the world population would be approximately 8.5bn in 2030. Increasing affluence, changing diets and lifestyles and longer lifespans are all contributing to rise demand for healthcare, especially in areas such as cancer and respiratory disease. For instance, the demand for oncology services had risen by 48% from 2005 to 2020[12], driven by the rapidly aging population and improvements in cancer survival rates. Employment of respiratory therapists is projected to grow 19% from 2019 to 2029[13], greatly faster than the average for all occupations. Growth in the middle-aged and elderly population will lead to an increase case of respiratory diseases such as chronic obstructive pulmonary disease (COPD) and pneumonia. Additionally, Covid-19, an essential respiratory ailment, has driven the market

[10] Grandview Research: Pharmaceutical Manufacturing Market Size Report, 2020-2027

[11] Fortune Business Insight: Vaccine Market Size Report, 2019-2027

[12] Future Supply and Demand for Oncologists: Challenges to Assuring Access to Oncology Services.

[13] Bureau of Labor Statistics.

growth.

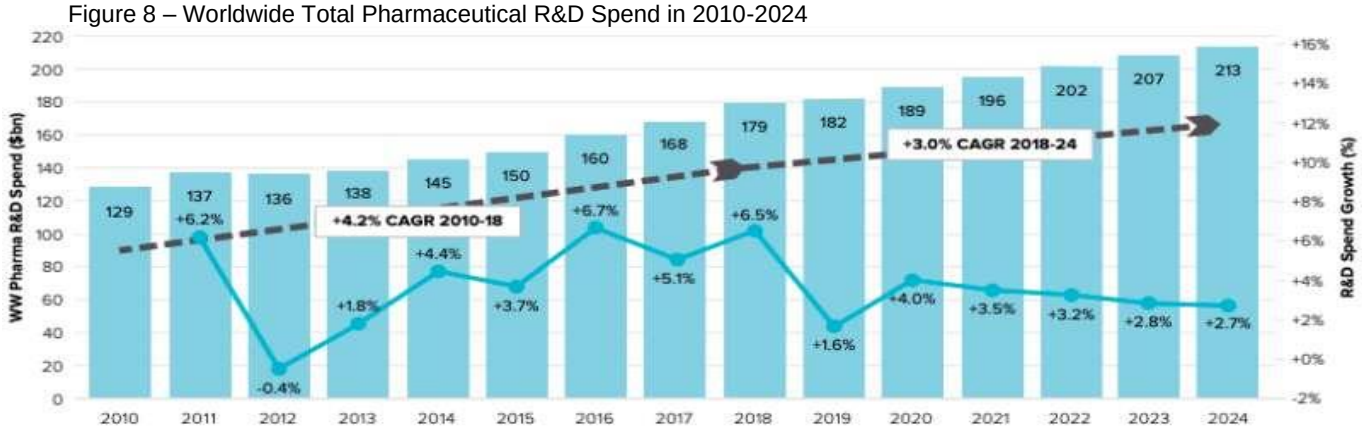
Figure 7 - NME Approvals per Year

	Number of NME's	Spend per NME ($bn)	Spend per NME (3y lag)
2006	29	3.8	
2007	25	4.9	
2008	31	4.2	
2009	35	3.6	3.2
2010	26	4.9	4.7
2011	35	3.9	3.8
2012	44	3.1	2.9
2013	35	4	3.7
2014	51	2.8	2.7
2015	56	2.7	2.4
2016	27	5.9	5.1
2017	55	3.1	2.6
2018	62	2.9	24

Source:EvaluatePharma. 2019

R&D spending: According to EvaluatePharma, whilst the larger Pharmaceutical industry presents resistance to economic changes, slow growth has been witnessed in R&D expenditure since 2012, with fewer breakthrough drugs being approved globally. As is shown in Figure 7, the average spends per New Molecular Entity (NME)[14] demonstrated a trend of decrease since 2013. R&D spend is expected to grow at a CAGR of 3.0% to 2024, lower than the CAGR of 4.2% between 2010 and 2018, partially due to trend to develop smaller medicines with lower clinical development cost burden. Moreover, pressure from generics, rising costs of R&D per new drug and slower growth of pharmaceutical emerging market (i.e., China) attribute to the phenomenon. Furthermore, according to an article[15] published by MDPI journal, they observed that 30 large pharma companies have constantly absorbed external innovation by leveraging M&A rather than R&D in-licensing. However, their results indicate the absorption of external innovation did not increase R&D productivity (i.e., no impact on outputs and outcomes). Interestingly, the cumulative R&D expenditures contributed to the advancement of clinical trials and the number of approved drugs while it did not contribute to the change in total sales.

Figure 8 – Worldwide Total Pharmaceutical R&D Spend in 2010-2024



Source:EvaluatePharma. 2019

Advances in technology helps the development of medicines and drugs

Science and Technology: The advances in science and technology give this sector additional highlight. For instance, the cell therapy technology and the new advances in functional genomics are offering researchers a more efficient way to develop medicines. Additionally, artificial intelligence (AI) can help to interpret the scale of data from generic libraries and genomics, and machine learning can be used to predict new pathways to develop a medicine. In Harvard University's

[14] A new molecular entity (NME) is, according to the U.S. Food and Drug Administration (FDA), a drug that contains no active moiety that has been approved by the FDA.

[15] Impact of Research and Development Strategy on Sustainable Growth in Multinational Pharmaceutical Companies, Fumio Teramae, Tomohiro Makino, Yeongjoo Lim, Shintaro Sengoku, Kota Kodama.

Introduction of AI technologies

teaching hospital, scientists diagnose potentially deadly blood diseases at a very early stage with the help of AI. The system could identify and predict harmful bacteria in blood with 95% accuracy after "learning" 25000 images of blood samples. Moreover, according to the Guardian report, the drugs development traditionally takes several years, and AI can speed the process up. Currently, the success rate of the new medicines has increased 10% after the introduction of AI technology in pharmaceutical industry. Furthermore, according to an article from Aranca[16], the cost of developing a drug could reach approximately $2.5bn and could take 10-15 years to complete phase III clinical trial. With an introduction of AI, researchers estimate that the cost would be reduced to 70%.

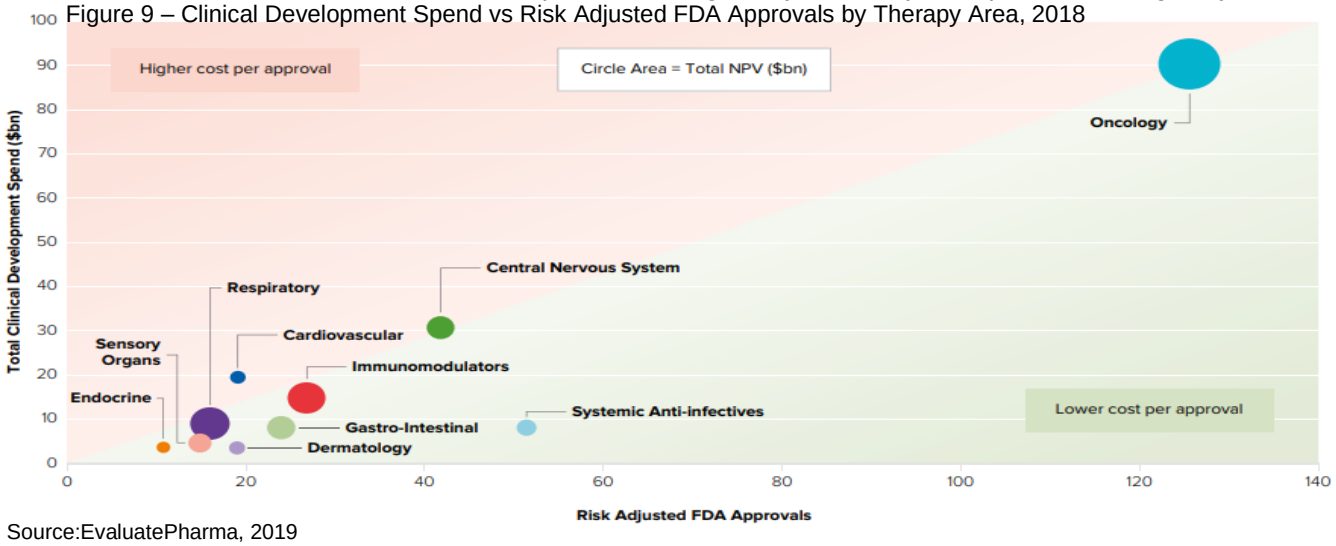
£10m of Investment made by GSK in AI technologies

The demand for innovation in the healthcare sector not only drives the improvement in health outcomes, affordability and quality, but also brings several opportunities for that market. In the last 5 years, institutional investors have pumped more than $80bn into health tech. To catch up with this trend, in 2020, GSK has spent £10m to open an AI research hub in London in order to seek and to discovery new drugs to treat cancer.

Fierce Competition and frequent M&A activities

Competition: The pharmaceutical industry is one of the most competitive industries in the world as there is a large number of small and large sized players, most of which are well-recognized by the market with a long history. Moreover, the strict government regulation and technology advancement in generics and biotech have further increased the competition since they have no option but to obey the new regulations and to adopt new technologies. In this situation, more and more companies pursue acquisitions and collaborations to enhance their pipelines and portfolios. In 2019 the market witnessed a significant **M&A activity in oncology**, such as the acquisition of Celgene by Bristol Myers Squibb and Allergan by Abbvie.

Figure 9 – Clinical Development Spend vs Risk Adjusted FDA Approvals by Therapy Area, 2018



Source:EvaluatePharma, 2019

[16] Aranca is a global research and analytical firm.

This fact is mainly resulted by the most expensive R&D costs and higher profit margin of oncology segment.

As is shown in the Figures 9 and 10, oncology continues to be the main R&D focus area in biopharma industry. Moreover, this market share is the largest among other segments. In this case, collaborations and acquisitions are the best way to finance this sector and survive in the fierce competition. In Consumer Healthcare sector, **fast moving consumer goods (FMGG) have experienced lower barriers to entry and fewer regulatory hurdles**. This led to the rise of niche and e-commerce-based companies focusing on fast-adapting consumer trends. It could be explained by the millennial effect and digital marketing explosion. According to recent McKinsey research, millennials are almost four times more likely than baby boomers to avoid buying products from the big companies. Sectors like **over-the-counter drugs will see greater competition** for deals, especially as large assets grow scarce, and private-equity firms provide more and more funding, which is partly the reason of the consolidation of Reckitt Benckiser, Procter & Gamble and Nestle. Further transactions are expected to materialize in the medium term. This is also in line with the trend of **exiting of diversified big pharma companies from consumer-driven markets**, such as simple generics, dermatology, consumer health and eye-care to finance investments in innovative drugs and concentrate their business focus. Other companies in addition to GSK that are pursuing this strategy include Novartis, Bayer, Eli Lilly and Merck & Co. For example, GSK disinvested Horlicks business in 2018 and it is selling non-core product in Consumer Healthcare unit to support GSK separation program [17]. Bayer is divesting Consumer Healthcare unit from 2018 because its Consumer Healthcare business has faced falling revenue in the U.S. as consumers switch from buying products at brick-and-mortar drugstores to online retailers.

Figure 10 - Top 10 Therapy Areas in 2024, Market Share&Sales Growth

Therapy Area	Sales ($bn)		CAGR
	2018	2024	% Growth
Oncology	**123.8**	**236.6**	**11.40%**
Anti-diabetics	48.5	57.6	2.90%
Anti-rheumatics	58.1	54.6	-1.00%
Vaccines	30.5	44.8	6.60%
Anti-virals	38.9	42.2	1.40%
Immuno	14.2	36.1	16.90%
Dermatologicals	15.8	32.1	12.60%
Bronchodilators	28	30.7	1.60%
Sensory Organs	22.3	30.5	5.30%
Anti-coagulants	19.3	24.6	4.10%

Source:EvaluatePharma, 2019

Price reduction initialed by governments

Pricing: In the last years, although there is introduction of technologies in pharmaceutical industry to reduce the uncertainty of development of medicines and the increase of generic drugs in the market, the price of medicines and healthcare products are continuously growing. According to Mckinsey's report, the price of branded drugs has risen by 57% since 2014 while the generic drugs price has dropped by 35%. In order to reduce the expenditure of government in the pharma and healthcare sectors, many countries took several measures. In US, new "International pricing index" was established to reduce healthcare costs for government and for patients. In Europe and many emerging markets, there is

[17] In Q1 2020, GSK initiated a two-year program to prepare for the separation of the company into two entities. This program will be analyzed deeper in following section "Investment strategic overview".

"international reference pricing" which is used as a primary lever for pricing control. In addition, Health Technology Assessments (HTAs) was created to assess if the price for new medicines and medical devices is fair.

Past Analysis

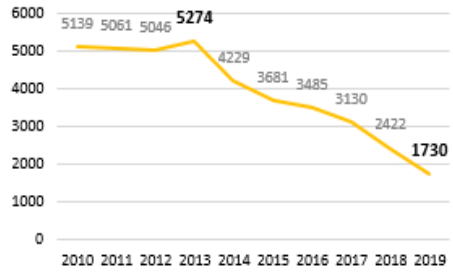
Development Track

GSK expanded its business all over the world mainly through acquisitions. Before their merge in 2000, Glaxo Wellcome was the world's third-largest pharmaceutical company by revenues (behind Novartis and Merck). Its products portfolio included drugs for the treatment of migraine, asthma (Top 1 manufacturer), coldsores and HIV (Top 1 manufacturer). SmithKline Beecham focused more on research and Consumer Healthcare products (skincare and eye products), while developing a small number of drugs and allergy vaccines as well. These two companies merged in 2000, and began the journey to strengthen Pharmaceutical, Vaccine and Consumer Healthcare units.

Build Consumer Healthcare Unit from acquisition of Novartis and Joint Venture with Pfizer

In 2006, GSK acquired the US-based Consumer Healthcare company CNS Inc. In 2009, GSK formed a Joint Venture with Pfizer to create ViiV Healthcare, specializing in HIV research. In April 2014, **Novartis sold its vaccine business to GSK and bought GSK's cancer business**. At same time, **Novartis formed a joint venture with GSK in Consumer Healthcare sector**. Afterwards, Novartis' Oncology unit represented 24% of its total revenue in 2015, although it only accounted for 6% in 2014. In 2019, Novartis has become the third largest company with an expertise in oncology. In the meanwhile, GSK has become the second largest vaccine company in the world, representing 17% of total global vaccine market. From this result, the deal was considered to be a win-win transaction. In 2018, GSK & Novartis Consumer Healthcare was buyout by GSK. After one year, the firm established a **Consumer Health joint-venture with Pfizer**, becoming the second largest Consumer Health company in the world. In 2019, GSK acquired Tesaro to rebuild its oncology pipeline and return to the battle against cancer.

Figure 15 - Advair Sales



Source: Company Data

Income Statement

Overall, GSK's **revenue** witnessed a consistent increase from 2015 to 2019, rising from £24bn to £34bn. **In 2019, GSK reported that, driven by Strong Vaccines (+21%), Consumer Healthcare (+17%), and flat Pharmaceuticals sales, their total sales increased by 9.5%.** The key focus for the sales is the product called *Advair*, which caused a continued negative impact. However, this is offset by sale of new products such as *Shingrix*, which added over £1bn in total sales. For FY19,

Figure 16 - Top five Products in GSK

Products	Revenue (£bn)		Sales (%)	
	FY18	FY19	FY18	FY19
Triumeq	2.6	2.5	8.40%	7.40%
Shigrix	0.8	1.8	2.60%	5.30%
Ser./Advair	2.4	1.7	7.80%	5.00%
Trivicay	1.6	1.7	5.20%	5.00%
Relvar/Breo	1.1	1	3.60%	3.00%
Total	8.5	8.7	27.60%	25.70%

	Patent Expiry		
	US	EU	Major Competitors
Triumeq	2027	2029	Descovy,Genvoya, Odefsey,Biktarvy
Shigrix	2026	2026	Zostavax
Seretide/Advair	Expired	Expired	Wixela,Hikma, Sandoz(Norvatis)
Trivicay	2027	2027	Isentress,Prezista,Reyataz,Kaletra,Biktarv
Relvar/Breo Ellipta	2025	2027	Symbicort,Foster, Flutiform,Dulera

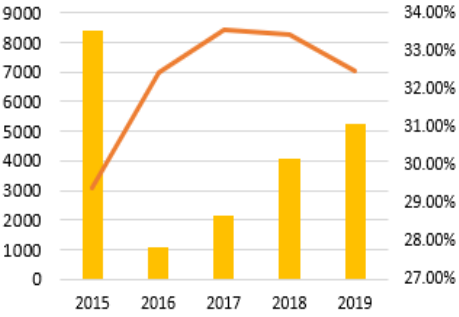
Source: Company Data

the top five products by sales were shown in figure 16. The company's **top five products contributed to 25.7% of Group revenues** in FY19, down from 27.6% in FY18. The decrease was primarily driven by reduction of the percentage contribution by *Triumeq* and *Advair*.

As mentioned previously, GSK's former top-selling brand *Advair/Seretide* continues to face aggressive competition from generics. The first generic copy of *Advair – Wixela* from Mylan Healthcare was launched in the US, at a 70% discount compared with *Advair*. We also noticed that Hikma Pharmaceuticals and Novartis' *Sandoz* also have advanced FDA's processes. However, during 2019, Norvatis' *Sandoz* was rejected by the FDA. GSK's patent has been off in the USA since 2010 (device patent expired in 2016) and Advair recorded revenues above £5 billion per year between 2010-2013. Although GSK has already cut its price to compete for the threat of generic competition since 2014, revenues have been significantly impacted, decreasing to 1.7bn in 2019 (29% of decrease compare with 2018).

GSK's good cost control

Figure 17 - Net Profit & EBITDA Margin



Source: Company Data

In the past five years, GSK's cost of sales, R&D costs and SG&A expenses always represent around 30%, 13% and 31% of total revenue respectively. To analyze GSK's cost efficiency, we ran an analysis with ten-year period of the percentage of cost in total revenue among GSK and its competitors (Annex 2). Since 2013, it has decreased from 32.39% to 29.78%. Although it decreased in the last 7 years, GSK's value has always been around the average. The continuous decrease of the percentage reveals the profit margin improvement and the cost efficiency in GSK. When looking to the whole industry, Pfizer, AbbVie and AstraZeneca are firms with the lowest percentage in comparison with its peers where Bayer AG has the highest percentage during last 10 years, except 2016 and 2017. Indeed, most of the pharmaceutical firms have been reducing the percentage of their cost in the revenue, while GSK and Johnson&Johnson have slightly increased their cost percentage in 2019. For instance, GSK has increased its percentage from 29.78% to 29.86% and Johnson&Johnson climbed to 33.58% from 33.21%. Nevertheless, as we mentioned previously, GSK always keeps its percentage under 30% and there is only 1% of the difference between GSK (29.86%) and the average (28.86%), which shows a **good performance of GSK in cost of sales management** during the last 10 years.

EBITDA margin increased from 29.4% to 32.5% during the last 5 years with a slightly decrease from 2017 to 2019, due to genericization of the high margin product of *Advair* in the US in 2019. However, **net income** decreased from £8.4bn (FY15) to £1.0bn (FY16) and recovered in the following 4 years to £5.3bn (FY19). The unexceptional 2015 is mainly related to net other operating income (expense), in which profit on disposal (£9.7bn) was much higher than transaction related

charges (£2.0bn) while in other years the net other operating income is negative. Actually, the **EBIT margin (recurring)** remained stable of around 23.5% and the **core result**, in another name, **the EBIT (recurring)** increased in line with the growth of revenue.

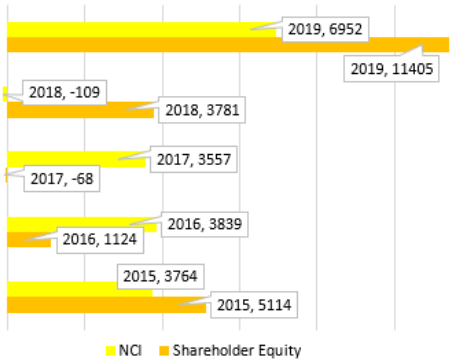
Figure 18 - EBITDA Margin %	
GSK	32.4554
Bayer AG	21.9405
Sanofi SA	17.7779
AstraZeneca	27.8789
Novob dc	48.5000
Rog SW	34.9608
Novatis AG	30.0080
Pfizer	43.3000
Merck & Co	33.2921
AbbVie	46.8000
Average	**33.6914**

Source: Bloomberg

Comparing its peers' EBITDA Margin, GSK maintained in the middle position, reflecting GSK's medium capacity to generate operating cash. It is noted the two companies (Novo Nordisk and Abbvie) with the highest EBITDA margin (>40%) focus on high value biologicals segment. Nonetheless, companies such as Sanofi, whose portfolio include higher generics/OTC level, have the lowest EBITDA margin because the generics' prices are more accessible, and the profit margin is correspondingly smaller. Other companies such as GSK and Bayer AG, who support higher operating expenses related to a broader organization (Pharmaceutical, Vaccine, Consumer Healthcare) have a medium margin.

Balance Sheet

Figure 19 - Equity Segment, £m



Source: Company Data

Total Equity decreased from 2015 to 2017 and recovered from 2018, reaching the lowest value of £3.5bn in 2017 and the highest value of £18bn in 2019. The decrease from 2015 to 2017 primarily reflected the recognition of the net other operating expenses (transaction-related charges**), the impact of the dividends paid and an increase in the pension deficit, partly offset by the profit and the favorable exchange translation impact from the weaker Sterling rates**. To be noted that in 2017, the impact of the dividends paid exceeded the Total profit for the year, leading to a negative equity value for shareholder. The significant increase of GSK's Total Equity in 2019 was primarily driven by the recognition of interest in Consumer Healthcare JV with Pfizer. As this acquisition was a non-cash transaction, it resulted an increase in net assets of £15bn, which included intangible assets of £12.4bn and goodwill of £3.9bn. In the meanwhile, the **capitalization ratio**[18] reached the lowest point of 0.2 in 2017 and recovered to 0.4 in 2019, consistent with the change in equity. They paid 80 pence per share of dividends every year. In 2019, they proceeded with large payments of £3.9bn (FY18: £3.9bn). We consider this dividend policy as so generous that it caused relatively negative FCF generation (including acquisitions), consequently, the less space for the new investment and development. However, the fixed dividend policy is normal among big pharma companies, for instance, AstraZeneca paid $2.8 per share, since fixed dividend payment attracts investors and it's easier to budget for

[18] Capitalization ratio=Equity/ (Equity + Net Debt)

GSK.

Figure 20 - Patent Valuation

In millions of pounds	Zejula	Benlysta	Meningitis Portfolio	Fluarix
CF 2019	83	54	141	30
CF 2020	120	61	139	36
CF 2021	213	73	166	39
CF 2022	298	88	195	41
CF 2023	361	106	229	37
CF 2024	405	127	271	30
CF 2025	432	152	307	23
CF 2026	452	149	336	18
CF 2027	466	124	362	15
CF 2028	477	91	350	13
CF 2029	459	70	298	11
CF 2030	416	63	261	10
NPV	2878	834	2139	237
Patent Value	2878	834	2139	237
Intial Investment	0	0	0	0
Excess return/Rev.	36%	9%	14%	6%

Source: Analyst Graph

A majority of GSK's **asset** consists of other intangible assets (Indefinite life brands: 63%; Licences, patents, amortised brands: 33%), accounting for 39% of total assets. The total assets remained stable until 2019, where the total assets increased by 37% to £8.0bn (FY 18: £5.8bn) and goodwill doubled to £10.6bn after acquisition of Tesaro Inc. In order to analyse the fair value of the patents, we made following assumptions: the future cash flows of the existing products represent a portion of their future revenue; their patents Net Present Value are same with patents value in the report and the discount rate is 5% (WACC is around 5% in our model). Under these assumptions, we obligate the NPV equals to patent value using "Goal Seek" and obtained the percentage of revenue which represents excess return. These percentages, in our point of view, are in the acceptable interval which, we could conclude, their patents are fairly valued.

Other investments accounts for around 3% of GSK's total asset in the last five years. This accounting item includes GSK's investment in other pharma companies that GSK has collaboration or competition relationship. Although this non-core item is not a huge amount, we deem it important for GSK's development since it offers GSK considerable interest income, opportunities to acquire or merger with other companies in the future and offset part of the loss when GSK's competitors do better through appreciation of competitors' share price. For instance, GSK holds 14.5% of 23andMe firm's common stock; 12.5% of Progyny, Inc; 17% of Theravance Biopharma and 15% of Lyell. During the first nine month of 2020, it reaches a value of £2576m, increasing by 60% compared with Q3 2019. In our point of view, this increase is resulted by the new additions of shares[19] and adjustment of fair value of its equity investment during the Covid-19 period.

Strategic investments in its peers

Figure 21

	Net Leverage	Net Debt
GSK	2.42	25.80
Roche	0.40	7.50
Novartis	1.10	14.10
Pfizer	2.00	33.40
Merck	1.20	13.60
Sanofi	1.60	14.70
AbbVie	1.70	21.20
Bayer AG	3.90	31.90
AstraZe	2.40	11.30
Average	1.86	19.28

Source: Eikon

As expected, **Net Debt** increased steadily driven by acquisition activities. In 2019, Net Debt increased by 17% to £26.5bn with Net Leverage[20] at 2.4x (FY18: 2.2x) as a result of the £3.9bn acquisition of Tesaro Inc as well as £0.2bn of Tesaro net debt, together with the £1.3bn impact from the implementation of IFRS 16. However, during the first nine months of 2020, GSK has decreased its debt level, from £33bn to £28bn. The huge decrease is primary driven by the reduction of the short-term borrowings (£4914m in Q3 2020 and £8216m in Q3 2019).

In 2019, GSK's **Net Leverage** of 2.4 and Net Debt of £25.8bn are relatively high

[19] According to the article from Simply Wall St, the Non-Executive Chairman, Jonathan Symonds, recently bought UK£197k worth of stock, paying UK£13.15 for each share.

[20] Net Leverage=Net Debt/EBITDA

comparing with its peers with an average Net Leverage of 1.9 and Net Debt of £19.28bn. To be noted, the top 2 companies (Roche and Novartis) are the sole pharmaceutical firms while GSK is not a fully pharmaceutical company and only a half of its revenue are generated from pharmaceutical unit. We consider that GSK's solid business profile is partially offset by the less favorable Net Leverage ratio following recent acquisitions. However, we believe that the Separation Program (New GSK and New Consumer Healthcare) and recent divestment of non-core Consumer Health products will deleverage GSK in the future.

Valuation

Cost of Capital and Growth

First of all, we use 10y UK Government Bonds as proxy of risk-free rate since GSK set in the UK and majority of investors use pounds to realize their investment. The FTSE100 is well diversified market portfolio for GSK. From the stock returns regression (2010-2020), one can achieve the raw levered beta of GSK's stock of 0.71. However, to find a more accurate cost of equity, this beta was adjusted through a reversion to mean (2/3 x beta + 1/3 x 1) in order to offset the error in the estimate obtained, caused by the limited number of observations (130) used in the regression model. GSK's beta unlevered is 0.69, is the median among its peers. Novo Nordisk (0.93), Roche (0.88) and Novartis AG (0.93) have a relatively high unlevered beta, reflecting a correspondingly high market risk. It's normal because these three companies are pure Pharma companies, which are not diversified as its peers. For instance, besides Pharma unit, GSK, Pfizer, Merck and Sanofi also have Consumer Health Unit and Vaccine Unit. The rest companies (excluding the first three companies) share an unlevered beta with a small range from 0.65 to 0.70.

Figure 39 - Cost of Capital

	Dec. 31, 2019
Tax Rate	19.00%
Market Cap in million, GBP	88760
D/EV	0.23
D/E	0.30
Ajusted Beta Levered	0.807
Raw Beta	0.710
SE of Raw Beta	0.097
Beta Debt	0.314
Beta Unlevered	0.693
Risk Free rate	0.26%
Average MRP	7.21%
Cost of Debt	2.52%
Cost of Equity	6.08%
Cost of Equity w/ Raw Beta	5.38%
Unlevered Cost of Capital	5.26%

Source: Analyst Graph and Bloomberg

GSK's cost of capital is relatively high compared with its peers. In a world where the risk-free rate is about 0.26%, this firm, having a credit rating of A- (S&P), can negotiate their debt at a cost of 2.32%. However, GSK traded bond is more approximate to BBB+ yield curve (2.62%) instead of A- yield curve (2.32%). This is because relatively high leverage among peers made its cost of debt higher.

With the adjusted levered beta of 0.81, Debt beta of 0.31, risk free rate of 0.26% and Market Risk Premium of 7.21%, also considering the actual debt to Market Cap ratio, we arrived to the unlevered beta of 0.69 and to the unlevered cost of capital of 5.26% (with CAPM).

Starting off from the unlevered cost of capital, one can run the APV model and figure out the Enterprise Value for each year. To note that GSK's Capital Structure

varies substantially during the explicit period and there is no constant WACC. In this case, APV model is easier to apply than other models.

For the explicit period, the unlevered free cash flows are growing in line with GSK's revenues, costs and investments projection as we mentioned previously. From 2030 onwards, however, we expect the UFCF to growth at a constant rate based on a constant Return on Invested Capital (ROIC) and Reinvestment Rate (RR). Both ROIC and RR are roughly stable during the last 2 years of the explicit period, so an average of those was considered for the continuing value. To be noted that UFCF of last years before the perpetuity period growth at approximate a constant rate (2.08%), close to the one considered in the perpetuity period (2.10%).

Alternative Scenario and Sensitive Analysis

Alternative Scenarios of Developing drugs and vaccines

To complement our valuation analysis, there are additional scenarios calculated to obtain a more realistic valuation price. Since we introduced the new medicines and their successful rate are not 100%, it is assumed two extremes scenarios: Pessimistic, where all products in pipeline do not succeed and Optimistic, where all products in pipeline succeed.

Sensitive analysis of effectiveness of "Separation Program"

Moreover, as GSK expected in FY19 annual report, the two-year Separation Program (New GSK and New Consumer Healthcare) would deliver £0.7bn of annual savings by 2022 and £0.8 billion by 2023 across supply chain, R&D and support functions. The total cost estimated is £2.4bn, of which £1.6bn in cash. These costs are expected to fund through the divestments of non-core products and equity stakes. To be noted that the large increase in "Divestments" during 2020 is mainly to cover the cash cost of this program. In our point of view, we considered this separation indeed will generate cost of savings since there are successful example previously. In 2016, GSK realized a program to reshape the Pharmaceuticals Units and generated a cost savings of £3bn as they expected. In order to analyze the effectiveness of this program, we implemented three scenarios regarding the amount of cost savings: Successful (£1bn in 2022, £1.1bn in 2023); Expectable (£0.7bn in 2022, £0.8bn in 2023) and Less Successful (£0.3bn in 2022 and £0.4bn in 2023). Combined these scenarios, several probabilities are assumed: 85% for normal scenario; 10% for the optimistic and 5% for the pessimistic; 10% for the successful scenario, 50% for the expectable and 40% for the less successful. In the end, it resulted in a share price of £17.38 and expected return of 21.95%. Hence, we recommend a **BUY** position. (Appendix 3)

Multiple and Ratio Analysis

To compare GSK with its peers, there are three multiples selected: P/E ratio,

EV/EBIT and EV/EBITDA. The combination of the first two multiples could indicate if the stock is undervalued or overvalued. Looking to the P/E ratio, GSK (18.94) is highly below the average (29.65). On the other side, the EV/EBIT (17.54) is also under the average value (19.05). The EV/EBIT is considered to be a better indicator than EV/EBITDA since this industry is a capital-intensive where depreciation/amortization is a true economic cost. **The relatively lower EV/EBIT and P/E ratios with a higher EBIT margin** among its peers show that GSK was undervalued.

ROE could be calculated as multiplication of ROA and Leverage ratio. The small value of ROA combining with a high value of ROE indicated that there is high level of debt, however, GSK is still rated as A according to the S&P, A- according to the Fintech, and A2 according to the Moody. These ratings show a positive expectation from banks and financial institutions. GSK is considered to have good debt repayment capacity and favorable future development. Comparing its peers, GSK's ROE is on the average.

Figure 40 - Multiple and Ratio Analysis

	GSK	Bayer AG	Sanofi SA	AstraZeneca PLC	Novob dc	Rog SW	Novatis AG	Pfizer	Merck & Co	AbbVie	Average
Divident per share Yield	0.059	0.041	0.043	0.029	0.022	0.032	0.035	0.041	0.033	0.050	**0.039**
P/E Ratio	18.95	28.76	38.53	97.95	23.56	25.55	17.20	17.53	17.55	10.96	**29.66**
EV/EBIT	17.54	14.42	18.41	51.06	16.73	12.05	20.30	13.59	15.22	11.14	**19.05**
ROA %	8.73	3.23	2.50	2.19	36.25	16.70	8.89	9.96	11.79	10.62	**11.09**
ROE %	28.70	8.77	4.76	10.43	76.00	44.72	17.50	25.72	37.42	-	**28.22**

Source: Bloomberg